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“Simulators in Inland Navigation”**

Vessel Traffic Services and Inland Navigation
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Maritime Simulation Rotterdam (MSR) is a major Maritime Simulation Centre, located in the port of Rotterdam and working in the field of maritime consultancy, research and training.

Three Full Mission Bridge Simulators and the VTS simulator are essential tools for realistic quality-based research and training.

MSR is a full subsidiary of the Shipping and Transport College

What is VTS, Vessel Traffic Services?

Since 1985 there is an IMO resolution called

GUIDELINES FOR VESSEL TRAFFIC SERVICES IMO RESOLUTION A.857(20)The 'review' of these first guidelines were adopted on 27 November 1997. The Guidelines are associated with SOLAS Regulation V/8-2 and describe the principles and general operational provision for the operation of a vessel traffic service (VTS) and participating vessels.

Harmonisation is one of the key-words for the implementation of this 'resolution'.

From those guidelines this is the definition of VTS.....

Vessel Traffic Services is a service implemented by the competent authority, designed to improve safety and efficiency of vessel traffic and to protect the environment. The service should have the capability to interact with the traffic and to respond to traffic situations developing in the VTS area.

However the IMO guidelines only address seagoing vessels that have to comply with the SOLAS convention (maritime vessels) and only address VTS in coastal, port approach and port areas, VTS is also used in inland waters.

Vessels move from one VTS area to another. Different operation of VTS in the various areas might lead to confusion to the masters of the vessels. Therefore there is a need to harmonise inland VTS through international guidelines suitable for application in all inland waters. IALA recommendation V-120 on Vessel Traffic Services in Inland Waters has been planned to do so.



The benefits of implementing a VTS are that it allows identification and monitoring of vessels, strategic planning of vessel movements and provision of navigational information and assistance. It can also assist in reducing the risk of pollution and co-ordinating pollution response.

The precise objectives of any VTS will depend upon the particular circumstances in the VTS area and the volume and character of vessel traffic.

Level of service. A VTS can provide different levels of services. The following services that are rendered by a VTS should be taken into account:

Information Services, broadcasting information about waterway conditions, other traffic, the weather etc.;

Navigational Assistance Service, assists the skipper on difficult navigational or meteorological circumstances;

Traffic Organisation Service, concerns the operational management of traffic and the forward planning of vessel movements to prevent congestions and dangerous situations.

River Information Services.

With the same objectives as VTS (safety, efficiency and environmental protection), RIS was developed.

RIS is a concept for harmonised information services which supports traffic and transport management in inland navigation, including interfaces to other transport modes.

In a pan-European project called COMPRIS, the focus was on the development and implementation of River Information Services (RIS) on the inland waterways in Europe. The project was launched in September 2002 and was finished at 25 of October 2005. It is funded by the Directorate-General for Energy and Transport (DG TREN) of the European Commission. The COMPRIS consortium consists of 44 active partners from 11 European countries.

Training requirements. Next to an organisation, communication and surveillance equipment a VTS needs appropriately, (to the proper level) trained operators.

In the Netherlands about 500 operators are actively involved in VTS. Mandatory by law the certification requirements for a VTS operator in the Netherlands are both a basic training certificate and a regional training certificate. In addition to this it is also mandatory to conclude a refresher course with an official exam on a 3 yearly basis to keep their certificate valid. With these certificates the VTS operator is entitled to give traffic instructions to vessels as meant in the Dutch "Shipping Act".

For the same 'harmonisation' reasons there is a need for international standards on training and certification of VTS personnel. IALA recommendation V-103, sets out these requirements and standards. It gives model courses in which the defined standards of competence are considered to be the level of proficiency which should be achieved for the proper performance of functions at a VTS Centre.

For the practical part of the training, the V-103 recommends to use simulation wherever practicable.



Why simulation in VTS training?

The need for consistent quality training of VTS operating personnel is of primary importance in ensuring the effectiveness of the service provided.

It gives the students the possibility to apply the newly gained knowledge and to show their competence.

It gives the opportunity to practice skills and gain operational experience, also in procedural knowledge, reactive capabilities and responses in emergency situations. In this respect personnel can achieve the practical skills, knowledge and competence necessary to operate in a professional manner without having experienced every situation operationally.

Simulation.

Since 1988 VTS operators in the Netherlands are practically trained on a VTS simulator. At that time a specific VTS Simulator was developed at the Maritime Institute of the Netherlands (MARIN) in Wageningen; it was the first and only VTS simulator in the world.

Nowadays on a national level there are 4 VTS Simulators in different sizes. Two at training institutes, one already mentioned before and the other one at MSR. Two smaller simulators are owned by VTS authorities. VTS operators from the VTS authority in Zeeland (river Schelde) makes use of the VTS simulator in Belgium at Kallo, Antwerp.

The National Nautical VTS Organisation (NNVO) was founded to take care of organising, managing, quality control and courseware development for the education of VTS personnel on behalf of the 7 VTS authorities in the Netherlands.

What is simulator training? "A didactical work form in which learning takes place by interaction with, or with the help of, a simulator".

'Simulated Training' is the simulation of operational events, practices and procedures to assess the ability of candidates to demonstrate their levels of competence. The "real situation" includes the environment and the means in which the trainee has to be able to work according his/her functional requirements. Determine what skills, knowledge and attitude is necessary to be able to perform the job at an adequate level to create the "simulated situation".

Transfer of learning and reality.

The closer the learning experience to reality, the easier to transfer knowledge and skills to new situations.

When developing simulation the basis is always an analysis of the real situation. All relevant variables determining the real task situation are being defined. They are known as "symptomatic events" or "critical incidents", typical for a certain situation under certain conditions.

Then a scenario is designed.....



Scenario.

A scenario is a description of conditions (status) and a chain of events. A scenario has a number of relevant elements (parameters). Each element exerts influence on the scenario.

Next to this the instructor has the possibility to influence the simulator exercise by varying some of the elements. This gives him the opportunity to change the level of difficulty and/or make the exercise more suitable for the individual student.

The benefit of using simulation in the education of VTS operators (next to the benefits we talked about before like quality of training) is reduction of training cost because of the reduction of time. The time before a candidate VTS operator is at the right level of competence to perform his/her job.

Before the national training was developed, it took a candidate one year before he/she was considered to be competent for the job. Today the NNVO delivers VTS operators with a basic certificate in three months time.

MSR uses simulation in Assessment Centers when assessing candidate VTS operators prior to acceptance for initial training. It prevents dropouts and is because of that cost saving. And maybe even more important it protects the candidate from failing.

Unfortunately an assessment during selection procedures is not compelled yet.

The use of VTS Simulators in research programs is mainly restricted to the influence of human factors on VTS related topics.